

Claims

1. A data carrier with an optically variable structure having an embossed structure with raised areas and a first coating contrasting with the surface of the data carrier, the embossed structure and the coating being so combined that at least parts of the coating are completely visible upon perpendicular viewing but concealed upon oblique viewing so that a tilt effect arises upon alternate perpendicular and oblique viewing, the first coating being provided only in certain areas, and the optically variable structure having at least in partial areas a second coating likewise contrasting with the data carrier surface and disposed in overlap with the first coating at least in partial areas.

2. A data carrier according to claim 1, characterized in that the second coating is disposed congruent to the raised areas of the embossed structure.

3. A data carrier with an intaglio motif and an optically variable structure having an embossed structure with raised areas and a first coating contrasting with the surface of the data carrier, the embossed structure and the coating being so combined that at least parts of the coating are completely visible upon perpendicular viewing but concealed upon oblique viewing so that a tilt effect arises upon alternate perpendicular and oblique viewing, characterized in that at least parts of the embossed structure are disposed in the area of the intaglio motif, and the optically variable structure has at least in partial areas a second coating disposed congruent to the raised areas of the embossed structure.

4. A data carrier according to claim 3, characterized in that the second coating has the same color as the intaglio motif.

5. A data carrier according to claim 3 or 4, characterized in that the second coating is part of the intaglio motif.

6. A data carrier according to at least one of claims 1 to 5, characterized in that the second coating has a color contrasting with the first coating.

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7. A data carrier according to at least one of claims 1 to 6, characterized in that the color used for the first coating has a complementary contrast with the color of the second coating.

8. A data carrier according to at least one of claims 1 to 7, characterized in that the first and second coatings are disposed at least partly in overlap.

9. A data carrier according to at least one of claims 1 to 8, characterized in that the optically variable structure has a metallic background layer.

10. A data carrier according to at least one of claims 1 to 9, characterized in that the first and/or second coating has machine-readable properties at least in certain areas.

11. A data carrier according to claim 10, characterized in that the first and/or second coating has magnetic, electrically conductive or luminescent properties.

12. A data carrier according to at least one of claims 1 to 11, characterized in that the optically variable structure is superimposed or underlaid with an additional transparent optically variable layer or a foil element.

13. A data carrier according to at least one of claims 1 to 12, characterized in that one of the coatings is of multicolor design.

14. A data carrier according to at least one of claims 1 to 13, characterized in that the first coating is a printed screen structure.

15. A data carrier according to at least one of claims 1 to 14, characterized in that the screen structure is a line screen with a constant screen ruling.

16. A data carrier according to claim 15, characterized in that the line screen consists of colored, spaced-apart lines or colored, directly adjoining lines.

17. A data carrier according to at least one of claims 1 to 16, characterized in that the line screen has thickened areas at least in certain areas.

18. A data carrier according to claim 17, characterized in that the line screen has the thickened areas only on one side.

19. A data carrier according to claim 17 or 18, characterized in that the line screen represents a halftone image.

20. A data carrier according to at least one of claims 1 to 19, characterized in that the embossed structure is an embossed screen structure.

21. A data carrier according to at least one of claims 1 to 20, characterized in that the embossed structure is executed as a line screen with a constant screen ruling.

22. A data carrier according to at least one of claims 1 to 20, characterized in that the embossed structure has a varying screen ruling in certain areas.

23. A data carrier according to at least one of claims 1 to 22, characterized in that the embossed structure and the second coating are executed as colored intaglio prints.

24. A data carrier according to at least one of claims 1 to 23, characterized in that the first coating is a dark line screen and the second coating is present in the form of a light, colored line screen.

25. A data carrier according to at least one of claims 1 to 24, characterized in that the embossed structure has raised areas of different height.

26. A data carrier according to at least one of claims 1 to 25, characterized in that the embossed structure and the first coating have the same screen ruling.

27. A data carrier according to at least one of claims 1 to 26, characterized in that the embossed structure is subdivided into partial areas where different partial embossed structures are provided.

28. A data carrier according to claim 27, characterized in that the partial areas form a two-dimensional matrix having m partial areas in the horizontal direction and n partial areas in the vertical direction, where $m, n \geq 1$, preferably $m, n \geq 2$.

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29. A data carrier according to claim 27 or 28, characterized in that the partial embossed structures in at least two adjoining partial areas are disposed offset by a fraction, in particular one third, of the screen ruling.

30. A data carrier according to at least one of claims 27 to 29, characterized in that at least the partial embossed structures of one partial area have an unembossed edge contour.

31. A data carrier according to at least one of claims 1 to 30, characterized in that at least one of the coatings consists at least partly of translucent inks.

32. A data carrier according to at least one of claims 1 to 31, characterized in that the data carrier is a paper of value, in particular a bank note.

33. A method for producing a data carrier with an optically variable structure having an embossed structure with raised areas and a first coating contrasting with the surface of the data carrier, the embossed structure and the coating being so combined that at least parts of the coating are completely visible upon perpendicular viewing but concealed upon oblique viewing so that a tilt effect arises upon alternate perpendicular and oblique viewing, characterized in that the first coating is applied to the data carrier only in certain areas, and the data carrier is provided with the embossed structure by means of an embossing tool, whereby a second coating likewise contrasting with the surface of the data carrier is transferred with the embossed structure congruent to the raised areas of the embossed structure.

34. A method for producing a data carrier with an intaglio motif and an optically variable structure having an embossed structure with raised areas and a first coating contrasting with the surface of the data carrier, the embossed structure and the coating being so combined that at least parts of the coating are completely visible upon perpendicular viewing but concealed upon oblique viewing so that a tilt effect arises upon alternate perpendicular and oblique viewing, characterized in that at least parts of the embossed structure are disposed in the area of the intaglio motif, and at least parts of the raised areas of the embossed structure are provided with a second coating.

35. A method according to claim 33 or 34, characterized in that the first coating is produced by the offset process.

36. A method according to at least one of claims 33 to 35, characterized in that the first coating is produced as a line screen.

37. A method according to at least one of claims 33 to 36, characterized in that the embossed structure and the second coating are produced by ink-carrying intaglio printing.

38. A method according to claim 37, characterized in that the second coating is executed as a color split.

39. A method according to at least one of claims 33 to 38, characterized in that the first coating is applied first, and in a second step the embossed structure and the second coating are transferred simultaneously.